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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Patent of:

RITTER et al.

Patent No.: 6,901,889 B1

Issued: June 7, 2005

Confirmation No.: 4519

Atty. File No.: 50118-00001

For: "FUMIGATION SYSTEM FOR A
DIESEL ENGINE"

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This is a request for a Certificate of Correction for PTO mistake under 37 C.F.R. 1.322(a). The errors in the patent are obvious typographical errors or omissions and the correct wording can be found in the Response to Restriction Requirement dated October 14, 2004, at Page 4, line 1. Attached is form PTO 1050 in duplicate along with copies of documentation that unequivocally supports patentee's assertion(s).

Respectfully submitted,

MARSH FISCHMANN & BREYFOGLE LLP

By:
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Date: 6/15/05

JUN 27 2005

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 6,901,889 B1

DATED : June 7, 2005

INVENTOR(S): RITTER et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 12

Line 60, delete "systems", and insert therefor --system--.

MAILING ADDRESS OF SENDER:

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PATENT NO. 6,901,889 B1



PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:

RITTER

Serial No.: 10/797,803

Filed: March 10, 2004

Confirmation No.: 4519

Atty. File No.: 50118-00001

For: "FUMIGATION SYSTEM FOR A
DIESEL ENGINE"

) Group Art Unit: 3747
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) Examiner: KWON, JOHN
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RESPONSE TO RESTRICTION

REQUIREMENT AND PRELIMINARY

AMENDMENT

CERTIFICATE OF MAILING

I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS EXPRESS MAIL NO. EV328104848US ADDRESSED TO COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450 ON October 14, 2004.

MARSH FISCHMANN & BREYFOGLE LLP

BY: *Bobby Simon*

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicant submits this Response to Restriction Requirement and Preliminary Amendment to address the Office Action mailed October 1, 2004. Although the Applicant believes that no additional fees are due for filing this Amendment and Response, please charge any fees deemed due to Deposit Account No. 50-1419.

Please amend the above-identified patent application as set forth below:

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This listing of Claims replaces all prior versions, and listings, of claims in the application.

1. (Original) A gaseous-fuel fumigation system for interconnection to a diesel engine, comprising:

a first valve disposed in a flow path between a gaseous-fuel supply and an air intake stream of a diesel engine, the first valve being operative to regulate a flow volume of a gaseous-fuel through the flow path based on a load level associated with the engine;

a second valve, disposed in series with the first valve in the flow path, the second valve being operative to regulate the flow volume of the gaseous-fuel through the flow path based at least in part on an oxygen content of exhaust gases in an exhaust stream of the engine.

2. (Original) The system of Claim 1, wherein the first valve establishes a first flow volume and the second valve is operative to establish a second flow volume between zero and one hundred percent of the first flow volume, wherein the second flow volume reaches the air intake stream.

3. (Original) The system of Claim 1, wherein the first valve regulates the flow volume of gaseous-fuel in relation to a boost pressure associated with a turbocharger attached to the engine.

4. (Original) The system of Claim 3, wherein the first valve is operated by the boost pressure associated with the turbocharger.

5. (Original) The system of Claim 1, further comprising:

an oxygen sensor, the sensor being operative to generate a sensor signal indicative of an oxygen content within the exhaust stream of the engine; and

an electronic control operative to receive the sensor signal and, based on the sensor signal, control the operation of the second valve.

6. (Original) The system of Claim 5, wherein the electronic control maintains at least a

predetermined minimum oxygen content in the exhaust stream using the second valve to regulate the flow volume of gaseous-fuel that reaches the air intake stream.

7. (Original) The system of Claim 6, wherein the predetermined minimum oxygen content is user selectable.

8. (Original) The system of Claim 6, wherein the predetermined minimum oxygen content is based at least in part on one of:

- a gaseous-fuel parameter; and
- an operating parameter of the engine.

9. (Original) The system of Claim 6, wherein the flow volume of the gaseous-fuel through the second valve is increased when the oxygen content is above the predetermined minimum oxygen content.

10. (Original) The system of Claim 6, wherein the flow volume of gaseous-fuel through the second valve is decreased when the oxygen content is below the predetermined minimum oxygen content.

11. (Original) The system of Claim 1, wherein at least one of said first and second valves further comprises:

an adjuster for establishing a predetermined maximum flow volume through said flow path.

12. (Original) The system of Claim 1, wherein said gas supply comprises at least one of:

natural gas;

methane gas;

propane;

hydrogen;

vaporized ethanol; and

vaporized methanol.

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13. (Currently amended) The system of Claim 1, wherein said gas supply comprises a gas well.

14. (Currently Amended) A gaseous-fuel fumigation system for interconnection to a diesel engine, comprising:

a first valve disposed in a flow path between a gaseous-fuel supply and an air intake stream of a diesel engine, the valve being operative to regulate a flow volume of a gaseous-fuel through the flow path;

an oxygen sensor operative to generate a first signal indicative of an oxygen content of an exhaust stream of the engine;

an engine load sensor operative to generate a second signal indicative of an engine load level;

a controller operative to receive the first and second signals from the oxygen sensor and adjust the first valve based on the first and second signals to maintain a predetermined minimum oxygen content in the exhaust stream.

15. (Original) The system of Claim 14, wherein the controller further comprises:

an oxygen content adjuster operative to selectively set the predetermined minimum oxygen content.

16. (Original) The system of Claim 14, wherein the oxygen sensor comprises:

a wide band oxygen sensor.

17. (Original) The system of Claim 14, wherein the flow volume of gaseous-fuel through the first valve is increased when the oxygen content is above the predetermined minimum oxygen content.

18. (Original) The system of Claim 14, wherein the flow volume of gaseous-fuel through the first valve is decreased when the oxygen content is below the predetermined minimum oxygen content.

19. (Currently Amended) The system of Claim 14, further comprising:

an engine-load valve disposed in series with the first valve in said flow path, said engine-load valve being operative to regulate the flow volume of the gaseous-fuel through the flow path based on a the engine load level associated with the engine.

20. (Original) The system of Claim 19, wherein the engine-load valve establishes a first flow volume and the first valve is operative to establish a second flow volume between zero and one hundred percent of the first flow volume, wherein the second flow volume reaches the air intake stream.

21. (Currently Amended) The system of Claim 19, wherein the engine-load valve regulates the first flow volume of gaseous-fuel in relation to a boost pressure associated with a turbocharger attached to the engine.

22. (Original) The system of Claim 14, wherein said first valve further comprises: an adjuster for establishing a predetermined maximum flow volume through said flow path.

23. (Currently Amended) A gaseous-fuel fumigation system for interconnection to a diesel engine, comprising:

a first valve disposed in a flow path between a gaseous-fuel supply and an air intake stream of a diesel engine, the first valve being operative to move from a closed position to an at least partially open position in response to a predetermined minimum boost pressure from a turbocharger associated with the engine;

a second valve, disposed in series with the first valve in the flow path, the second valve being operative to further regulate the flow volume of the gaseous-fuel through the flow path based at least in part on an oxygen content of exhaust gases in an exhaust stream of the engine; and

a by-pass port passing through the first valve for maintaining a predetermined minimum flow volume of gaseous-fuel across the first valve while first valve is in a closed position.

24. (Original) The system of Claim 23, wherein said by-pass port further comprises:

an adjuster operative to adjust the predetermined minimum flow volume.

25. (Original) The system of Claim 23, wherein said first valve further comprises:

an adjuster operative to adjust the predetermined minimum boost pressure necessary to at least partially open the first valve.

26. (Cancelled)

27. (Original) A method for operating a gaseous-fuel fumigation system interconnected to a diesel engine, comprising:

establishing a first flow volume of a gaseous-fuel for a diesel engine based on a load level of the diesel engine;

identifying an oxygen content of an exhaust stream of the engine;

based on the oxygen content, regulating the first flow volume to establish a second flow volume, wherein the second flow volume is between zero and one hundred percent of the first flow volume; and

injecting the second flow volume into an air intake stream of the engine.

28. (Original) The method of Claim 27, wherein said regulating step comprises one of increasing and decreasing said second flow volume to maintain a predetermined oxygen content in the exhaust stream.

29. (Original) The method of Claim 27, further comprising:

identifying a desired oxygen content for the engine based on at least one engine specific parameter; and setting a controller to the desired oxygen content wherein the controller is operative to regulate the first flow volume to establish the second flow volume.

30. (Original) The method of Claim 27, wherein the establishing a first flow volume step comprises operating a first valve in a flow path between a gaseous fuel supply and the air intake

stream.

31. (Original) The method of Claim 27, wherein the establishing a second flow volume step comprises operating a second valve in the flow path between the gaseous fuel supply and the air intake.

REMARKS

Applicant has amended claims 13, 14, 19, 21 and 23 and cancelled claim 26.

In the October 1, 2004 Office Action the Examiner issued a Restriction Requirement with regard to the above-identified patent application. The Examiner indicated that two patentably distinct species of the claimed invention were present.

Species I - Figure 1;
Species II - Figure 4

Applicant submits that, Claims 1-13 and 23-25 and 27-31 read on the Figure 1 of Species I and that claims 14-22 read on Figure 4 of Species II.

Applicant hereby traverses the election requirement and provisionally elects Group I. However, Applicant reserves the right to pursue Claims 14-22 in a subsequent divisional/continuation application. Applicant submits that Claims 1-25 and 27-31 should be examined. In this regard, applicant notes that Independent Claim 27 is a generic method claim as each independent claim regulates a gaseous fuel supply to a diesel engine based on a load level of the engine and an oxygen content of an exhaust stream of the engine. Applicant further submits that the method of Claim 27 cannot be practiced by another materially different apparatus or by hand and that the apparatuses of Claims 1, 14 and 23 cannot be utilized to practice another materially different process.

Based on the foregoing, Applicant believes that all pending claims are in condition for allowance and such disposition is respectfully requested. In the event that a telephone call would further prosecution and/or expedite allowance, the Examiner is invited to contact the undersigned.

Respectfully submitted,

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JUN 27 2005